

CAN JUDGMENT BE DEVELOPED: A CASE STUDY
OF THREE PROVEN LEADERS

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

SLADE H. BEAUDOIN, MAJ, USA
B.S., United States Military Academy, West Point, New York, 1995

Fort Leavenworth, Kansas
2006

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REPORT DOCUMENTATION PAGE				<i>Form Approved</i> OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 16-06-2006		2. REPORT TYPE Master's Thesis		3. DATES COVERED (From - To) Aug 2005 - Jun 2006	
4. TITLE AND SUBTITLE Can Judgment Be Developed: A Case Study of Three Proven Leaders				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Beaudoin, Slade H., MAJ, US Army				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) U.S. Army Command and General Staff College ATTN: ATZL-SWD-GD 1 Reynolds Ave. Ft. Leavenworth, KS 66027-1352				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION / AVAILABILITY STATEMENT Approved for public release; distribution is unlimited.					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT This thesis examines if judgment can be developed. A review of the development of Generals Patton, Eisenhower, and Bradley provides a biography outlining the commonalities in their growth. Subsequently, existing judgment development models are analyzed for use in this study. The development of the synthesized general is overlaid on the judgment development models. In addition to ascertaining that judgment can be developed, this thesis asserts that experience is paramount in the process. Further, only through understanding the environment in which a decision was made, repeated exposure to similar experiences, and appropriate feedback can an experience be appropriately stored and recalled later. Finally, this thesis projects a method to enhance judgment in both academic and organizational environments.					
15. SUBJECT TERMS Judgment, Development, Leadership, Decision-Making, Intuition, Education, Patton, Eisenhower, Bradley					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 74	19a. NAME OF RESPONSIBLE PERSON
a. REPORT Unclassified	b. ABSTRACT Unclassified	c. THIS PAGE Unclassified			19b. TELEPHONE NUMBER (include area code)

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

Name of Candidate: Major Slade H. Beaudoin

Thesis Title: Can Judgment Be Developed: A Case Study of Three Proven Leaders

Approved by:

_____, Thesis Committee Chair
Roy A. Merrill, M.B.A.

_____, Member
Richard V. Barbuto, Ph.D.

_____, Member
Robert J. Rielly, M.S., M.A.

Accepted this 16th day of June 2006 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, Ph.D.

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

CAN JUDGMENT BE DEVELOPED: A CASE STUDY OF THREE PROVEN LEADERS, by Slade Beaudoin, 60 pages.

This thesis examines if judgment can be developed. A review of the development of Generals Patton, Eisenhower, and Bradley provides a biography outlining the commonalities in their growth. Subsequently, existing judgment development models are analyzed for use in this study. The development of the synthesized general is overlaid on the judgment development models.

In addition to ascertaining that judgment can be developed, this thesis asserts that experience is paramount in the process. Further, only through understanding the environment in which a decision was made, repeated exposure to similar experiences, and appropriate feedback can an experience be appropriately stored and recalled later. Finally, this thesis projects a method to enhance judgment in both academic and organizational environments.

ACKNOWLEDGMENTS

Special thanks go to my committee, especially my chair who found the time and patience to steer this ship. His willingness to explore the world of judgment development speaks volumes to his quest for understanding the growth of leaders. Additionally, thanks must go to my second reader, to whom I owe unquantifiable gratitude for any indications of academic brilliance that might shine through these pages. Thanks are also extended to the number three man, who ensured the relevance of the project and the product. I am eternally grateful to each of these men. Without their mentorship, this thesis would not be.

I maintain absolute admiration to my loving wife, who found the energy to prop me up through the struggles of the research, the writing, and the edits. Her continued support and personal sacrifice enabled me to continue to push forward. And finally, my heart goes out to my four beautiful children who also insisted I push forward . . . push forward on the swing, push forward on the seat of the bike, or push forward on the threads of the baseball until the street lights came on. Without the love of my family, I would not be.

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ACRONYMS

AAR	After-Action Review
FM	Field Manual
MDMP	Military Decision Making Process
RPD	Recognition Primed Decision

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CHAPTER 1

INTRODUCTION

General Introduction

The Army has a seemingly insurmountable and timeless challenge as leaders at all levels are faced with tough and time-sensitive decisions requiring sound judgment. Undoubtedly, the ability of the US Army to develop leaders is critical to its sustained success. Among the essential attributes of success on the battlefield is sound judgment. Nevertheless, academic institutions and leaders throughout the Army, charged with preparing leaders with the foundation required for success, lack for a suitable method to adequately develop the judgment required by leaders.

This thesis attempts to determine if patterns in judgment development exist which could prove beneficial to leadership development institutions. Likewise, military leaders could apply these methods in developing their subordinates. In an attempt to determine if such a pattern of development exists, the researcher conducted a detailed review of the careers of Generals Patton, Eisenhower, and Bradley prior to their assumption of duties in the positions that they held at the outset of World War II. Identifiable similarities in the leadership development of these three proven leaders were assessed against known judgment development theories. Finally, this thesis addresses the feasibility of applying a similar model to modern-day academic institutions and unit leadership development programs.

Background

Serving in the military for an extended period of time and in a variety of units affords the opportunity to attend many schools and observe many leaders. Each institution and organizational leader, in one way or another, through action or inaction, develops subordinates' judgment. Through observations, personal reflection, and application of various techniques, leaders struggle to find the most appropriate means to develop subordinates' judgment. The development of judgment is essential to providing for the future success of subordinates and the US Army. The development of subordinates is arguably the most critical purpose of a military officer. Answering this research question will provide anyone and perhaps the Army with potential techniques or principles for developing subordinate leaders. Further, if an identifiable education pattern is discovered, academic institutions could enhance their programs to provide optimal leader development education to US Army's Officer and Non-Commissioned Officer Corps.

Primary and Subordinate Research Questions

The primary research question this thesis will attempt to answer is: Can judgment be developed? This thesis will provide a comprehensive look at the development of judgment through the study of Generals Patton, Eisenhower, and Bradley. What commonalities or threads of continuity exist in the preparation of these three proven leaders for arguably the most significant and successful missions the world has ever seen? This study compares any existing commonalities against judgment development theories in an attempt to determine applicability for today's leader development

programs. The subordinate research questions that derive from the primary question follow:

1. Are there common threads in the judgment development of the selected individuals? This thesis will analyze each of the generals to determine if similar experiences in their development exist. The similarities in experiences will enable the creation of a synthesized biography for evaluation against known judgment development models.

2. How is judgment applied? Assessing the possibility of improving judgment requires an understanding of judgment application. This includes the relationship between judgment, decision making, and intuition.

3. What are the current judgment development theories? This paper will analyze the application of judgment and identified methods for its improvement.

4. Can the current judgment theories be applied to the commonalities of the selected individuals? This paper will analyze known judgment development models for comparison against the development of the three generals.

5. What role does aptitude play in judgment development? If the similarities between the three selected generals appear to be experiences common to officers of their era, aptitude for judgment development may be addressed as a facet of potential development. The same discussion may arise if the experiences are similar and the results differ.

6. How can judgment be developed? If judgment can be developed, how can it be developed? This will become critical in the determination of applicability to future use as a model for academic institutions and leader development programs.

7. Can these methods be embedded in today's leader development programs? A study of judgment development, as with most studies, would be insignificant if not assessed for future application. If threads exist and, when filtered through a given judgment development model, indicate a potential improvement of leadership development programs, a recommendation for further study might follow.

Assumptions

The judgment of Generals Patton, Eisenhower, and Bradley was generally developed prior to the beginning of World War II. This assumption is necessary because this thesis will not evaluate the development of the three generals beyond 1941 as outlined in delimitations later in this chapter. Further, this assumption is valid because the three generals certainly maintained, at a minimum, relatively sound judgment before their selection to the positions in which they served during World War II.

Judgment does not result from a singular event. This assumption is necessary because an attempt to draw out the common threads of Generals Patton, Eisenhower, and Bradley will likely result in missing some events. If a single event in any of their development went undocumented, it would be excluded from the model derived of the similarities between the generals. If that one event were actually the singular cause of their judgment development, the study would be perfectly invalid. Further, this assumption is valid because it is generally accepted that no judgment development switch exists that could just be flipped on.

Generals Patton, Eisenhower, and Bradley each exhibited high levels of judgment. This assumption is necessary to continue this study. If their judgment were not particularly good, studying their development for comparison against known judgment

development models would be irrelevant. Further, this assumption is valid as it is generally an accepted truth, supported by more than ample evidence.

Scope

The scope of this paper is intentionally broad. In an attempt to omit no potential aspect pertinent to judgment development, the evaluation of the three generals will include everything from their early childhood and relationships with their parents and spouses to their military careers including combat experience, assignments, mentors, and formal education through the beginning of World War II. Similarly, several judgment development models will be examined in detail. All of the commonalities that exist among the generals will be set against all applicable judgment development models.

Limitations

There are several limitations to determining the development of judgment in the three selected generals. First, all three and virtually all of their mentors, contemporaries, and immediate subordinates are deceased. Second, documentation on the specific curriculums for any institutions attended is sure to be incomplete if available at all. Third, most accounts of the three generals' focus on their successes in World War II, rather than their prior development. Despite these potential gaps, there is a plethora of information available on each of the three generals, providing the ability to determine any threads of commonality. Autobiographies and biographies exist that provide extensive first and second hand information on their younger years. Further, works that focus on their successes in World War II provide basic corroborating information to their earlier development. Additionally, the results of this research, even if a single potential common

thread were lost due to incomplete or unavailable data, remain valid. Any number of experiences may develop judgment and the absence of one, while unfortunate, would not invalidate other experiences or the development of their judgment as a whole. The potential to capture methods for improving the development of judgment demands that this study continue even with the above potential limitations.

Delimitations

This thesis will evaluate Generals Patton, Eisenhower, and Bradley from childhood through the start of World War II in an attempt to draw out commonalities in their experiences. Their judgment in World War II was generally sound. How a senior General might slightly improve his judgment will not be evaluated, rather how his judgment developed to that level in the first place. Since their positions in World War II were generally the evidence of their sound judgment, their development of judgment beyond 1941 will not be evaluated. Additionally, this thesis will address the potential for application into today's leader development methodology; however, it will not develop it in detail.

Terms and Definitions

Decision. "The passing of judgment on an issue under consideration; a conclusion or judgment reached or pronounced" (Morris 1982, 372).

Decision making. "The process of selecting a course of action as the one most favorable to accomplish the mission" (FM 6-0 2003, 2-3). Also, "the process that begins to change the situation . . . knowing *whether* to decide, then *when* and *what* to decide" (italics in original; FM 22-100 1999, 5-3).

Intuition. “The act or faculty of knowing without the use of rational processes; immediate cognition” (Morris 1982, 674). Further, “the ability to understand the important aspects of a situation without evident rational thought and inference” (FM 6-0 2003, 2-5).

Intuitive Decision Making. “The act of reaching a conclusion which emphasizes pattern recognition based on knowledge, judgment, experience, education, intelligence, boldness, perception and character” (FM 6-0 2003, 2-4).

Judgment. “The capacity to make sound and reasonable decisions; good sense; discernment” or “something, as an opinion or estimate, formed by sound and reasonable evaluation” (Morris 1982, 692). Further, “the ability to size up a situation quickly, determine what’s important, and decide what needs to be done” (FM 22-100 1999, 2-13).

Leadership. “The capacity or ability to lead [lead: show the way, guide or direct]” (Morris 1982, 719). Also, “Influencing people by providing purpose, direction, and motivation while operating to accomplish the mission and improving the organization” (FM 22-100 1999, 1-4).

Significance of the Study

This study of the potential development of judgment is both relevant and significant to today’s Army. In a time of transformation of the US Army’s organizational structure and academic institutions overlaid on a global unconventional war with conventional threats looming on the horizon, the value of improving the developmental processes associated with judgment is self-evident. Leaders and institutions incapable of or unwilling to devote energy to improving their methods of developing subordinates and students should, perhaps, reevaluate their significance.

Summary

The challenges of today's Army leaders are innumerable. The level of responsibility expected of leaders is going up as fast as the clock is ticking demanding an answer. We expect subordinates to maintain sound judgment and consistently make the right decisions. Nevertheless, the US Army does little as an organization to ensure the success of its leaders. This thesis will attempt to provide insight into the potential of judgment development. Regardless of the findings, the time spent researching and preparing or simply reading this document will be worthwhile--any time studying and reflecting on judgment development is sure to promote self-growth.

CHAPTER 2

REVIEW OF LITERATURE

Background

Extensive research uncovered no comparison of Generals Patton, Eisenhower, and Bradley with respect to judgment development. The purpose of this chapter is to review existing publications on the three generals and judgment development. This chapter will analyze multiple works on each to create a short, pertinent biography of each general. Further, these will be synthesized to create a single, synthesized biography, highlighting the commonalities between the three generals.

Subsequently, this chapter will examine decision making and highlight the major points of judgment development models. It will then review deliberate and intuitive decision making and define applicable judgment development models. Finally, this information will be used in chapter 4 of this thesis to compare the judgment development models against any identifiable similarities in the experiences of the generals evaluated.

General George Patton

1. General Patton was born in San Gabriel, California on 11 November 1885 (Patton 1997-)
2. Ancestors fought in the Revolutionary, Mexican, and Civil Wars (Patton n.d.a)
3. The oldest of 2 children (Hirshson 2002, 19)
4. Goal in life was to become a hero (Patton n.d.a)
5. An avid reader who's favorite academic subject was history (Hirshson 2002, 24-25)

6. Married Beatrice Ayer in May 1910 (Patton n.d.a)
7. Competed in 1912 Stockholm Olympics in the Pentathlon (Patton n.d.a)
8. He attended West Point and graduated in 1909 (46th of 103 in his class) (Patton 1997-)
9. Commissioned Cavalry (Patton 1997-)
10. Served as Commandant of the Mounted Service School at Fort Riley (Patton n.d.a)
11. Served in the Mexican expedition in 1915 (Patton n.d.a)
12. Inaugural member of the US Tank Corps (Patton n.d.a)
13. Served in WWI in France, commanding 304th Tank Brigade (Patton 1997-)
14. Graduated from the Command and General Staff College in 1924 (Patton n.d.a)
15. Served in the tank center at Camp Meade, Maryland with General Eisenhower (Patton 1997-)
16. Distinguished Graduate from the Army War College in 1932 (Patton n.d.b)
17. Commanded the 2nd Armed Division at Fort Benning (Patton 1997-)
18. Served as a controller for mechanized maneuvers in 1941, testing the mechanization concept for the Army (Patton n.d.b)
19. Organized Operation Torch (invasion of Africa) with General Eisenhower (Patton 1997-)
20. Mentors include General Pershing in Mexican expedition and WWI, General MacArthur in tank center, and General Marshall as a Division Commander (Patton 1997-)

General Dwight Eisenhower

1. General Eisenhower was born in Denison, Texas, on 14 October 1890; raised in Abilene, Kansas, from the age of 2 (Eisenhower n.d.)
2. Ancestors had no significant military experience (Nicolay 1945, 4)
3. He was the third of seven boys born to modest parents (Nicolay 1945, 8)
4. Enjoyed the study of history; specifically why leaders in battle made decisions (Nicolay 1945, 12-13)
5. Married Mamie Geneva Doud in July 1916 (Eisenhower n.d.)
6. Characterized as a great athlete in high school (Nicolay 1945, 14)
7. He attended West Point and graduated in 1915 (61st of 164 in his class) (Nicolay 1945, 26)
8. Commissioned Infantry (Eisenhower n.d.)
9. Served in the Mexican expedition in 1916 (Nicolay 1945, 27)
10. Served with the Tank Corps from 1918 to 1922 (Eisenhower n.d.)
11. Volunteered to serve as an observer for the Tank Corps' First Transcontinental Motor Convoy in 1919 (Eisenhower n.d.)
12. Served in the tank center at Camp Meade, Maryland with General Patton (Eisenhower 1997-)
13. Served as the Executive Officer to General Conner in the Panama Canal Zone (Eisenhower n.d.)
14. Graduated first in his Command and General Staff College class in 1924 (Eisenhower n.d.)
15. Graduated from the Army War College in 1928 (Eisenhower n.d.)

16. Served as Executive Officer to General Moseley, Assistant Secretary of War
1928-1933 (Eisenhower n.d.)
17. Served as Chief Military Aide to General MacArthur, Army Chief of Staff 1933-
1935 (Eisenhower n.d.)
18. Served under General MacArthur as assistant military advisor to the Philippine
Government from 1935 to 1939 (Eisenhower n.d.)
19. Planned and served as Chief of Staff for the Blue (defense) Forces for mechanized
maneuvers in 1941, testing the mechanization concept for the Army (Nicolay
1945, 58)
20. Served in a variety of Executive Officer and Chief of Staff positions from 1940-
1941 (Eisenhower n.d.)
21. Served as Deputy Chief of Pacific Defenses under the War Plans Division from
1941-1942 (Eisenhower n.d.)
22. Organized Operation Torch (invasion of Africa) with General Patton (Eisenhower
1997-)
23. Mentors include General Pershing in the Mexican expedition; General MacArthur
at the tank center, as Army Chief of Staff, and in the Philippines; General
Marshall as Army of Chief of Staff (Eisenhower n.d.)

General Omar Bradley

1. General Bradley was born and raised in Clark, Missouri on 12 February 1893
(Whiting 1971, 11)

2. He was the oldest of two boys, his younger brother dying at age 2; parents also raised his two female cousins after the death of their mother--effectively, Bradley had two older sisters (Bradley 1983, 18)
3. His father, the local school teacher, died when he was 15; his mother was a seamstress (Whiting 1971, 12)
4. Ancestors had no significant military experience (Bradley 1983, 17)
5. An avid reader; fascinated by study of history (Bradley 1983, 19)
6. Married Mary Quayle in 1916 (died in 1965) and Esther Buhler in 1966 (Bradley 2003)
7. Maintained a self-described passion for and ability to play baseball (Bradley 1983, 21)
8. He attended West Point and graduated in 1915 (44th of 164 in his class) (Whiting 1971, 12)
9. Commissioned Infantry (Bradley 1983, 35)
10. Served in the western United States from 1915-1920 (Bradley 2003)
11. Served as a mathematics instructor at West Point from 1920-1924 (Bradley 2003)
12. Graduated second in his Advanced Infantry Course in 1924 (Whiting 1971, 12)
13. Graduated from the Command and General Staff College in 1929 (Bradley 1983, 61)
14. Served as a tactics and weapons instructor at the Infantry School from 1929-1933 (Bradley 1983, 63)
15. Graduated from the Army War College in 1934 (Bradley 1983, 75)

16. Served as an instructor of tactics, plans and training at West Point from 1934-1938 (Bradley 2003) (This tour, concluding 13 teaching years of 23 years of service) (Bradley 1983, 79)
17. Served as Chief of Operations Branch, G-1 at the War Department Headquarters from 1938-1940 (Bradley 2003)
18. Served as Assistant Secretary of the General Staff from 1940-1941 (Bradley 2003)
19. Served as Commandant of the Infantry School from 1941-1942 (Bradley 2003)
20. Mentors include General Marshall at the Infantry School and as Army Chief of Staff (Whiting 1971, 12-13)

Synthesized Biography

1. All born to poor families, financially limited
2. Two of the three families had no significant military experience
3. Two of three were from larger families 4-7 kids
4. An avid reader with a preference to the study of history
5. All married shortly after commissioning
6. All capable and passionate about athletics
7. All attended West Point and graduated in the top 50 percent of the class; however, none better than top 27 percent
8. Commissioned Infantry or Cavalry
9. Two of three had combat experience as lieutenants
10. Two of three were extensively involved with the introduction of tanks into the Army; the third was a student and instructor of tactics

11. All graduated from the Command and General Staff College and the Army War College with one as the distinguished graduate of each; the third was second in his class at the Advanced Infantry Course for senior officers
12. Two of the three planned and served in the Army's mechanized maneuvers in 1941, testing the mechanization concept for the Army
13. Two of the three developed the plans for Operation Torch (invasion of Africa)
14. All three were recognized early for hard work and talent
15. Each had mentors who were ultimately exceptionally successful including Generals Pershing, MacArthur, and Marshall, with only General Marshall as the single common mentor
16. All were experts of the same field, albeit by different courses: one was primarily a commander, one served in a variety of Executive Officer and Chief of Staff positions; effectively serving as the orchestrating officer, and one was primarily an instructor
17. Additionally, a relationship between each of the three exists sporadically throughout their careers. There are many references to the relationships between Generals Patton, Eisenhower, and Bradley as they traversed their careers--working together in training, doctrine development, and other senior positions facilitated an interlaced trust between these three officers.

Judgment Development Theories

The United States Army, in Field Manual 6-0, *Mission Command: Command and Control of Army Forces*, reveals analytic and intuitive decisions (2003, 2-3) both requiring the application of judgment. Analytic decision making is a deliberate planning

process involving additional time, information and analysis of the problem. Meanwhile, intuitive decision making involves a lesser evaluated problem requiring a decision. The US Army model for analytic decision making is the Military Decision Making Process (MDMP) outlined in Field Manual 5-0, *Army Planning and Orders Production*. Meanwhile, there is no US Army model for intuitive decision making. In *Sources of Power: How People Make Decisions*, Gary Klein outlines the Recognition-Primed Decision Model and several applications for the development of judgment in resource (including time, information, or analysis) constrained situations. Further, Robin Hogarth in *Educating Intuition* outlines a seven-step process for developing intuition, a critical aspect of judgment.

US Army Doctrine

FM 6-0 defines decision making as “the process of selecting a course of action as the most favorable to accomplish the mission” (2003, 2-3). In selecting a course of action, the leader may implement either an analytic or intuitive decision making process.

The analytic decision making model is a “structured, analytic process based on generating several alternative solutions, comparing these solutions to a set of criteria, and selecting the best course of action” (FM 6-0 2003, 2-4). The goal of this process is to arrive at the optimal solution to a given problem set. This process utilizes the experience of the leader, as well as that of the associated staff members to evaluate the given data, conduct detailed analysis, and provide most advantageous option for the given problem set.

This approach has the following advantages. It:

- Is methodical and allows the breakdown of tasks into recognizable elements.
- Ensures commanders consider, analyze, and evaluate all relevant factors, employing techniques such as war-gaming.
- Provides a methodology when the decision requires great computational effort.
- Provides a good context for decisions, especially for explanations.
- Helps resolve conflicts among courses of action.
- Gives inexperienced personnel a methodology to replace their lack of experience. (FM 6-0 2003, 2-4)

While exceptionally time consuming, this analytical process produces optimal results by taking into account multiple courses of action and negating the effect of a weak element of the decision making process--even if that is the decision maker himself.

Field Manual 5-0 outlines the Military Decision Making Process, see figure 1. Figure 1 depicts the primary steps and significant products developed as a result of the MDMP.

While the dozens of subordinate steps, requirements, and products will not be addressed, analysis of the surface level of the MDMP shows the breadth and depth of the integrated analytical processes. Also of note, the commander (or primary decision maker) is integrated into the process at critical times for his intent, guidance, approval or simply his opinion. Each time the commander is introduced into the process, he is provided information which will often be necessary for a subsequent decision. Further, the staff will draw from him his perspective on their application of the process to the given problem set based on his experiences and the facts they have previously provided him. Ideally, the staff and the commander work in concert to provide each other the significant and timely facts and guidance to produce the optimal course of action.

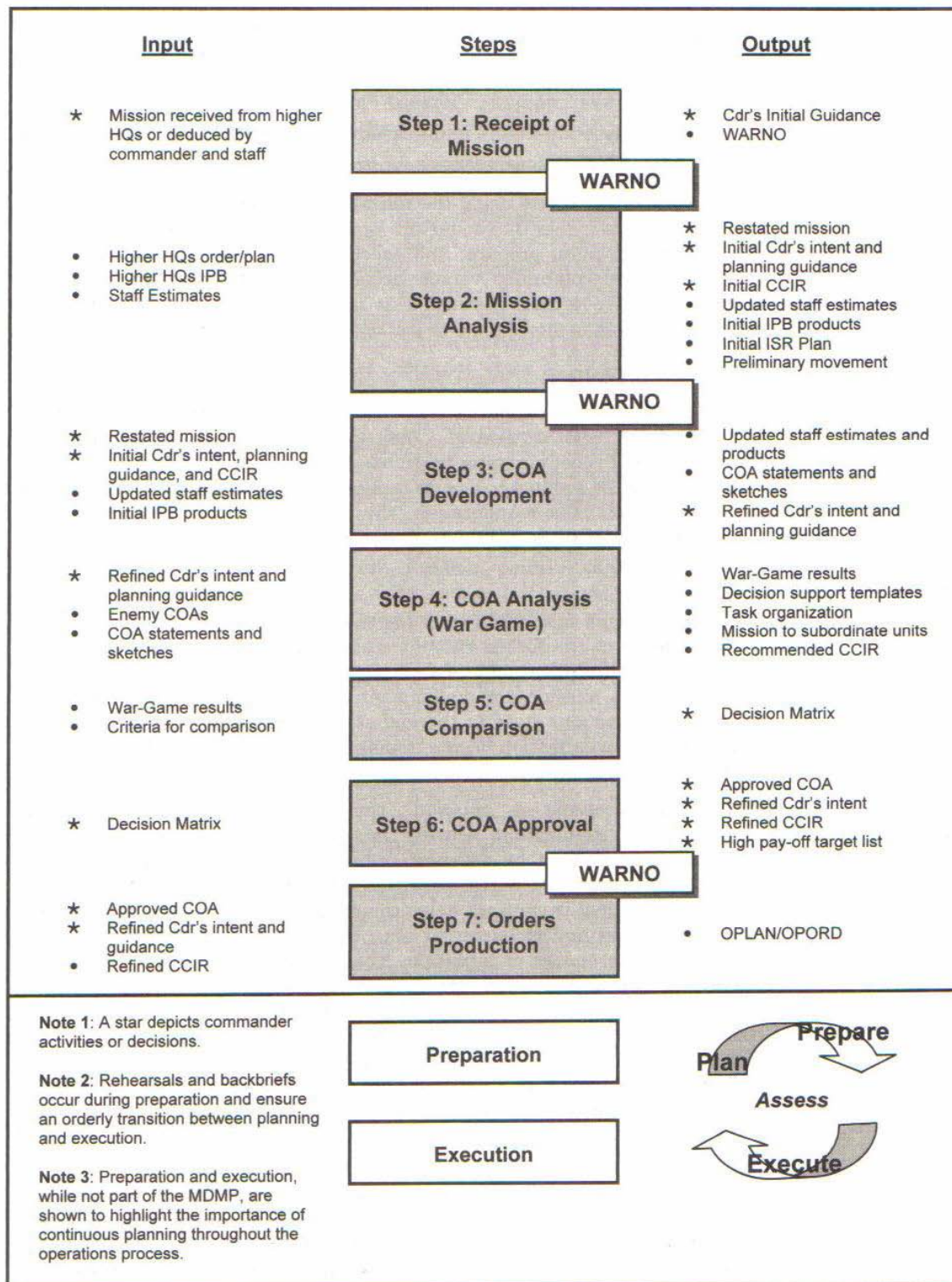


Figure 1. The Military Decision-Making Process
Source: FM 5-0 2005, 3-3.

The MDMP's seven steps take a given problem set and drive it through an in-depth analytical process. Frequently, the missions that are filtered through the MDMP are complex, high-stake operations where the cost of poor analysis is not only the failure of the organization to accomplish the mission, but the loss of lives by those conducting the operation. Nevertheless, the process is equally applicable when applied to any task requiring a decision on how best to execute a given task.

Step 1: Receipt of Mission acknowledges that a task exists and that the commander must make a decision on how to accomplish this task. Upon receipt of the mission, the commander will conduct a hasty analysis of the requirement and he or his staff will immediately notify subordinate organizations of the impending decision.

Step 2: Mission Analysis is a detailed segregation of each aspect of the assigned task. Individuals and small groups assigned to the staff will breakdown everything determinable associated with the task. In addition to the specified tasks--those directed by a higher headquarters--implied tasks are developed to determine all of the tasks that must be accomplished in support of the mission. Further, known and assumed information about the enemy and operating area are verbalized. Finally, every known limitation--that must or must not be done--is outlined. These tasks, facts, assumptions and limitations are brought to the commander to ensure he understands the magnitude of the requirement. Additionally, the commander will assess this information to determine both what else he needs to know about his organization, the enemy, or the operating environment, and he provides his planning guidance to facilitate the staff continuing in the process. A critical byproduct of the mission analysis is mission essential task. This generally overarching

task must be accomplished at all cost. The staff proceeds through the process with this task foremost in their mind.

Step 3: Course of Action Development is the first time the staff develops proposed solutions to the given problem. With the detailed analysis of the requirements and the commander's initial planning guidance, the staff will fully develop multiple options. Each course of action must account for all of the information derived in mission analysis and the commander's defined intent. The scrutiny applied to each course of action virtually ensures that it will accomplish the mission. Nevertheless, multiple courses of action are developed in the third step of a seven step process. In addition to determining options available for the application of the assets to solve the problem, elements of the staff develop how the enemy will work to prevent accomplishment of the given task. Each of the friendly and enemy courses of action are brought to the commander for his review before the process can proceed. Again, the commander is afforded the opportunity to gain an appreciation for the staff's application of the process against the given problem set and again he will provide any updated guidance.

Step 4: Course of Action Analysis (War Game) plots the developed courses of action against the enemy's anticipated plan. For a course of action to survive step 3, it must accomplish the assigned mission. The war game is a methodical process which evaluates each course of action individually with the influence of the enemy's actions operating as hurdles to its otherwise assured success.

Step 5: Course of Action Comparison analyzes each course of action against selected criteria to enable the commander to determine which option he will direct. The process allows the commander to determine which course of action is better suited

against the enemy with respect to the selected criterion. After this analytical analysis, the commander will compare these results as a factor in his decision.

Step 6: Course of Action Approval allows for the commander to formally approve the course of action. The commander may issue final guidance at this point. This acceptance of the staff's product defines their work as the commander's plan.

Step 7: Orders Production is the process by which the staff will develop the written and graphic products to disseminate the commander's plan. These products will ensure a common understanding throughout all subordinate organizations with any association to accomplishing the given mission.

The military decision-making process is a network of analytical processes. It represents an exceptional model for a decision maker's application of judgment under ideal conditions. Surrounded by knowledgeable and capable analysts, the commander is systematically presented with applicable data, variables, analysis and alternatives. Given time to synthesize the information and address concerns, the commander applies his judgment and makes his decision. Further, the decision is optimally distributed in text, pictorials, and verbal communication, followed with clarification through a rehearsal.

Although there are published methods for abbreviating the MDMP, these remain detailed, analytical, commander and staff integrated processes. As addressed doctrinally, they do little to serve the most time sensitive decisions required of commanders. FM 6-0 defines intuitive decision making as "the act of reaching a conclusion which emphasizes pattern recognition based on knowledge, judgment, experience, education, intelligence, boldness, perception, and character. This approach focuses on assessment of the situation vice comparison of multiple options" (2003, 2-4). Although an acceptable definition of

the solution, it does little to describe how the decision is achieved and falls short of providing a model. Doctrine also fails to address the development of the commander's judgment, be it analytical or intuitive.

Sources of Power: How People Make Decisions

As previously addressed, the US Army identifies that intuitive decision making exists and is routinely executed. Nevertheless, no doctrinal model exists to enable commanders to further develop this critical method of problem solving. In *Sources of Power: How People Make Decisions*, Gary Klein addresses intuitive decision making through studies of fire fighters, military leaders and medical personnel--all professionals, experts in their given field, and required to make time-sensitive, vital decisions. His application of the "Recognition-Primed Decision Model" clearly serves as an acceptable option for the study of the development of judgment.

The Recognition-Primed Decision (RPD) Model "fuses two processes: the way decision makers size up the situation to recognize which course of action makes sense, and the way they evaluate that course of action by imagining it" (Klein 1999, 24). Klein outlines three variations before unveiling an integrated version. For ease of understanding, the same process will be used in the review of his work. Figure 2 demonstrates the three variations of the RPD model while the final model will be provided later.

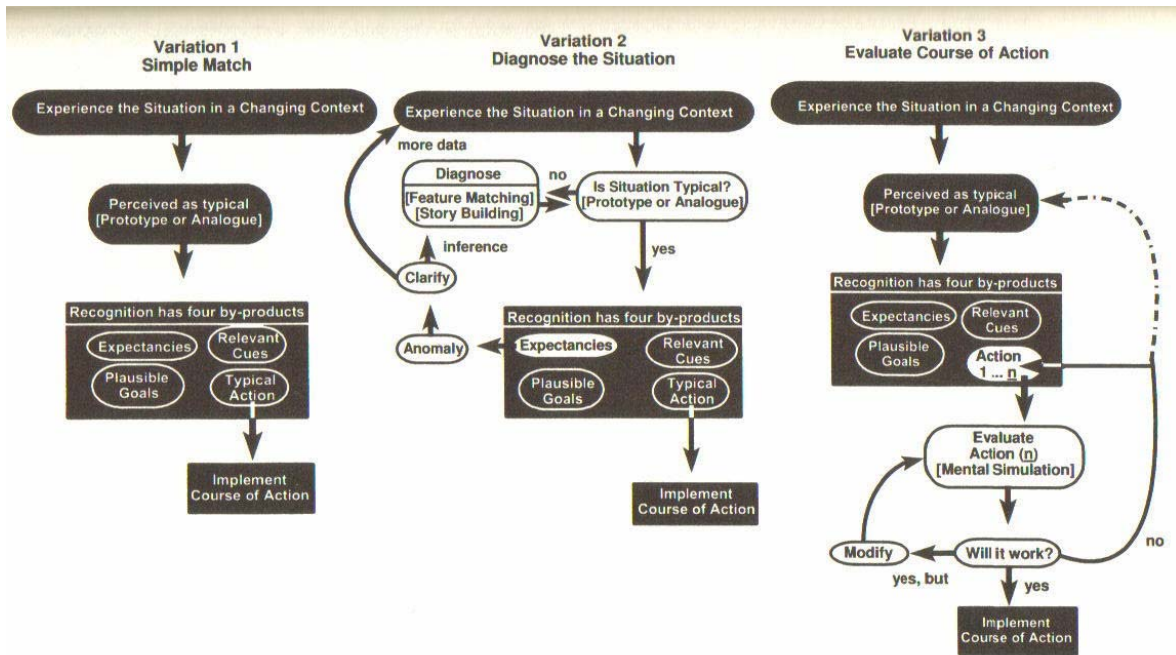


Figure 2. The Recognition-Primed Decision Model
 Source: Klein 1999, 25.

Variation 1 is the ideal situation, where the decision maker will recognize the situation as typical, allowing him to quickly size up the situation and select the typical course of action. The evaluation of the course of action comes with the initial thoughts as the decision maker has seen the scenario played out previously, likely many times. Because the situation is typical, he will “understand what types of *goals* make sense (so the priorities are set), which *cues* are important (so there is not an overload of information), what to *expect* next (so they can prepare themselves and notice surprises), and the *typical ways of responding* in a given situation” (Klein 1999, 24). It is the goals, cues, expectancies, and actions that define the situation as typical and thereby drive the decision to execute the typical action.

Variation 2 is only slightly more complex. The decision maker will recognize the situation, but it does not match as well as variation 1. “The decision maker may have to devote more attention to *diagnosing* the situation, since the information may not clearly match a typical case or may map onto more than one typical case” (Klein 1999, 26). The uncertainty of the situation causes the decision maker to gather more information and/or further evaluate the situation to determine if aspects of it match previous experiences. When the decision maker identifies the situation--or enough pieces of it--as typical, he will move forward with the typical goals, cues, expectancies and actions. If an expectancy is not met, the decision maker will attempt to clarify the discrepancy. Of significance, an expectancy that is not met could be something that happens unexpectedly or something that should or would have under a typical situation that failed to happen. As previously outlined, experience allows proficient decision makers to quickly recognize a situation as something they have seen before. According to Klein, “The opposite side of the coin is noticing when a pattern is broken or an expectancy is violated” (1999, 151). In variation 2, a violation of an expectancy will drive a decision maker back into diagnosis. Clarification of the anomaly will return the decision maker back to implementing his course of action, albeit potentially modified.

Variation 3 is again similar to variation 1, the simple match, with a slight modification. In variation 3, the decision maker clearly identifies the situation as typical but before executing the typical actions, he evaluates those actions against the given scenario. Klein outlines mental stimulation as the process by which a decision maker evaluates his projected actions. In summation, mental stimulation can allow a decision maker to look at a current set of circumstances, infer how the situation developed to its

current state and further extrapolate how the situation will progress to conclusion. The mental stimulation is simply creating a logical sequence of events from the past through the present and into the future. Klein asserts that more experienced decision makers achieve more useful mental stimulations (1999, 73-74).

If the course of action provides doubt in the given situation, the decision maker will either modify or dismiss the action. Modification will allow the decision maker to evaluate his new course of action. This process will continue until the action is accepted or dismissed as being inappropriate for the given situation. If at any time the action is deemed inappropriate, the decision maker will move back to determining if the situation is typical.

A potentially simpler, scientific method of comparing the three variations is outlined by Klein as follows:

1. Variation 1: “if . . . then” -- a rules’ based response
2. Variation 2: “if (???) . . . then” -- questioning the nature of the situation
3. Variation 3: “if . . . then (???)” -- questioning the outcome (1999, 26)

According to Klein’s study of veteran firefighters operating in extreme conditions, 80 percent of their decisions were based off of recognition of the situation or aspects of it--he asserts that this would be even higher under normal conditions (1999, 24). “People with greater experience can see the world differently. . . . They notice problems more quickly. They have richer mental stimulations” (Klein 1999, 280). Further, experts make hidden assumptions “without thinking and without letting others know about them” (Klein 1999, 190). Experience, to enrich one’s knowledge base, is paramount to decision making in the Recognition-Primed Decision Making model.

Figure 3 provides the integrated version of the recognition-primed decision model.

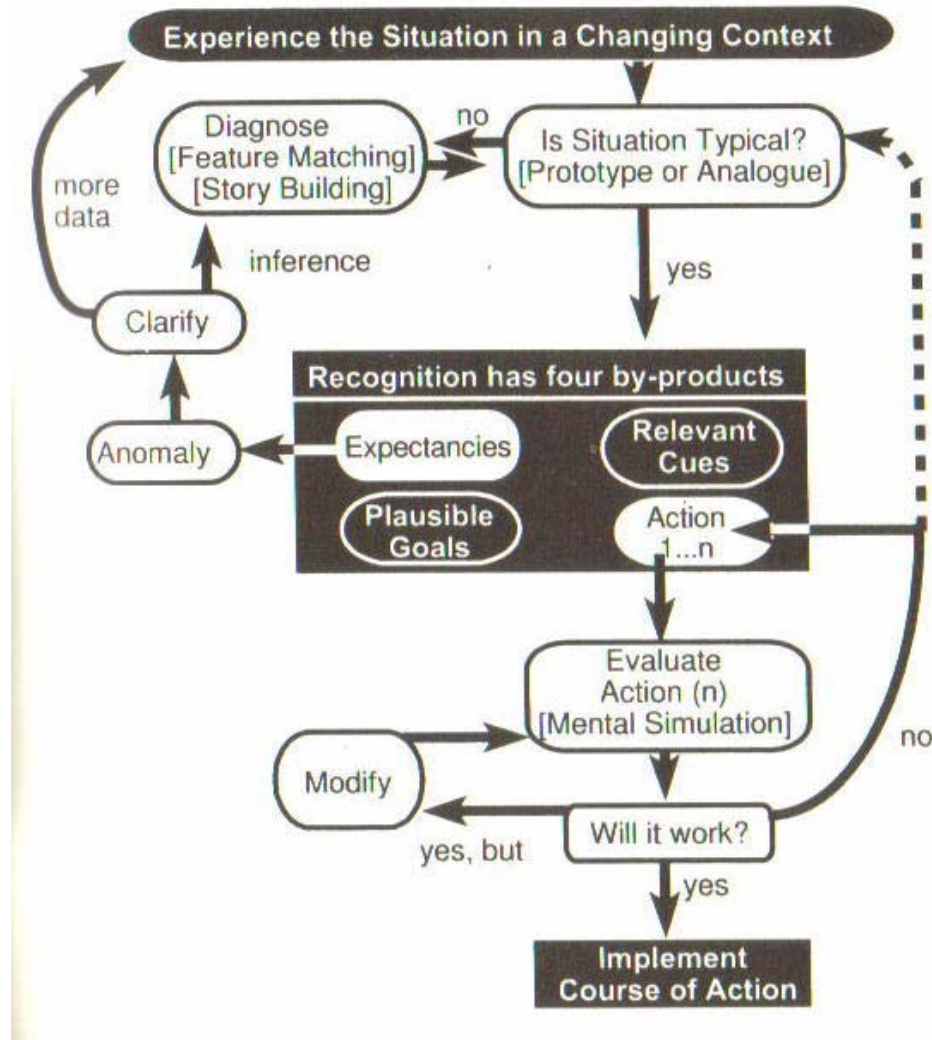


Figure 3. Integrated Version of Recognition-Primed Decision Model
Source: Klein 1999, 27.

Klein addresses various methods to develop decision makers. The essence of improving judgment is experience. The ability to enhance the experience base in a

decision maker improves subsequent decisions. There are two methods for improving decisions: time-sensitive decision training and training intuition.

In an effort to improve time-sensitive decisions, Klein suggests that “we might require that the trainee make rapid responses rather than ponder all the implications” (1999, 30). The ability to force these decisions with great rapidity will enhance the subject’s ability to discern a pattern. This might seem like a statement of the obvious, but evaluators frequently allow younger decision makers more time to reach the solution. This is perfectly acceptable, but not if the objective is the development of the students ability to make quick decisions.

Intuition, as the tool that identifies patterns, can also be developed. “The part of intuition that involves pattern matching and recognition of familiar and typical cases can be trained” (Klein 1999, 42). True experience will enhance the ability of the decision maker to identify patterns. Although this may be the most enduring single event of training intuition, it is likely not the most effective. Actually experiencing an event in real time detracts from both redundancy and the ability to replay the event. Meanwhile, simulations can facilitate a trainee executing multiple iterations in a shorter time period while allowing for the review of the actual circumstances preceding the decision. The cumulative effect of these training aids can enhance the extent to which the decision maker can draw on that experience later (Klein 1999, 43).

Finally, studying successful applications of experienced decision makers can develop judgment (Klein 1999, 43). These experiences are frequently relayed through stories.

Stories

- Organize events into a meaningful framework.
- Serve as natural experiments, linking a network of causes to their effects.
- Are similar to mental simulations; they are evaluated using many of the same criteria.
- Can be used to extract and communicate subtle aspects of expertise. (Klein 1999, 196)

Stories allow the trainee to understand many of the aspects of a decision maker's state when the decision was required. Understanding the circumstances of the story enhances the ability to recall the "experience" later.

Analogues and metaphors can also enable the furtherance of judgment. As outlined by Klein, an analogue is "an event or example from the same domain as the task at hand" while a metaphor "comes from a markedly different domain" (1999, 197). Being from a different domain, the metaphor may provide some similarities but will not match the current problem set. An event that is an analogue would more clearly apply to the current task at hand. Meanwhile, the same event could be a metaphor the next time upon which it is drawn. As a metaphor, it would be less effective in providing a replica of the current problem; however, it could still provide some peripheral information to help solve the problem. Regardless of the extent to which the analogue or metaphor relates to the required decision, "usually our experience bank works smoothly, providing us with structure and interpretation even for tasks we have not been faced with before" (Klein 1999, 197).

Although authored to focus on improving decision making, Klein's messages clearly apply to the judgment aspect of decision making. None of the above techniques address improving an analytical process; rather, they address the processes of gaining and

applying experience. His developmental focus is on understanding the Recognition-Primed Decision Model and gaining experience to enhance application of the model in future decisions--effectively, the application of judgment.

Educating Intuition

Like Klein, Robin Hogarth describes experience as the essence of improving the decision maker's judgment. In *Educating Intuition*, Hogarth defines intuition as “thoughts that *are reached with little apparent effort, and typically without conscious awareness . . . [i]nvolv[ing] little or no conscious deliberation*” (italics in original; 2001, 21). She also asserts that intuition is experience based and that it “can be explicitly educated” (Hogarth 2001, 4). Although she does not provide a model for intuitive decision making, Hogarth does outline five key ideas to prove that intuition can be explicitly educated and seven guidelines for educating intuition.

Hogarth further proclaims that intuition is a process that is “characterized by a lack of awareness of how outcomes--or judgments--have been achieved” (2001, 7). In her description, she refers to intuition as a “contrast of analysis or logical thought [which] cannot be defended or justified by a ‘step-by-step’ process” (Hogarth 2001, 7).

The major conclusion of this book is that intuition can be educated, and ways of doing so are, in fact, specified. The support for this conclusion is provided by five key ideas:

1. one organism but many information-processing systems;
2. learning shaped by experience;
3. two systems for learning and doing;
4. intuition as experience, and
5. making scientific method intuitive” (Hogarth 2001, 14)

In defining one organism, Hogarth explains that the human body is comprised of many systems. Most of the information-processing is conducted without conscious thought. The human body functions for the most part on its own. Her example of the thyroid delivering enzymes highlights the organism functioning with the complete absence of a decision. She further explains that conscious thought only allows for a singular focus. That is the comparison of multiple facts is executed sequentially rather than simultaneously. In foreshadowing the conclusion of her book, Hogarth outlines walking as a process that when young, requires much deliberate attention. She evidences this by describing a young child waddling across the room when the child's mother enters the room, the baby falls--the conscious thought required to walk was broken. However, as the child grows older, walking becomes intuitive; thereby no longer requiring deliberate thought. This experience based development of the organism that is the human body is the fundamental premise of her work (Hogarth 2001, 15-18).

In highlighting how experience shapes learning, the author outlines two sources of learning: "what others tell them and their own experiences" (Hogarth 2001, 19). The interrelationship between what people are told and what they experience can be self-fulfilling as people alter their experience based off of what they have been told and interpret what they were told based off of their experience. Hogarth further classifies "*what* people learn into two categories: *content* and *rules*" (2001, 19). She defines content as peoples' "knowledge about the world" and rules as "knowledge of how to do things" (2001, 19). She asserts that the "basic mechanism that enables humans to learn from experience is remarkably simple. There are two key principles. First, people learn by noticing associations or contingencies and on average the more such associations are

observed, the more likely that are to be remembered. Second, rewards and punishments help people remember some associations better than others” (Hogarth 2001, 19).

In defining two systems for learning and doing, Hogarth outlines the tacit and deliberate methods. She defines a tacit system as encompassing “all processes that occur tacitly or automatically, that is, largely without use of conscious attention” (2001, 21). Consequently, she aligns intuition under the definition of tacit. Of significance, she also specifies that learning from experience can occur tacitly. In defining a deliberate system, she simply “encompass[es] all processes that require effort, that is, attention and deliberation” (2001, 21). In addition to highlighting that the tacit and deliberate systems can be used in concert to provide insight to a particular problem, Hogarth reiterates that repeated application of deliberate processes can promote that process to the tacit realm of activity (2001, 22).

In her development of intuition as experience, Hogarth specifies that intuition is domain specific. While most adults maintain a level of intuition appropriate to interaction in relationships or driving an automobile, very few have developed intuition relative to trading stocks or buying antiques. Further, both the stock trader and the antiquarian would be virtually paralyzed in the other’s domain (Hogarth 2001, 23).

The basic premise of making a scientific method intuitive is repeated experiences in that domain. The simple application of two steps facilitates this transition. “First, people have to learn why and when their intuitions are or are not accurate. . . . Second, people need to learn how to integrate the principles of scientific method into their everyday habits” (Hogarth 2001, 24). Appropriate application of these two steps will allow for the migration of processes from deliberate to tacit.

Beyond the five key ideas that prove the education of intuition, Hogarth offers seven guidelines for its development. Throughout the education of intuition, one must understand the interaction between deliberate and tacit experiences.

1. Select and/or create your environments
2. Seek feedback
3. Impose circuit breakers
4. Acknowledge emotions
5. Explore connections
6. Accept conflict in choice
7. Make scientific method intuitive (Hogarth 2001, 207)

The selection of the learning environment is essential to the appropriate development of intuition. Failure to understand the conditions of an experience may equate to inaccurate development of intuition. Hogarth insists that people need to proactively seek the environments in which they want to develop. “In short, environments can be deliberately chosen to develop cultural capital in the desired directions” (Hogarth 2001, 208).

Feedback can help appropriately set an experience, yet it is not always available. To develop intuition, one must seek deliberate feedback. In addition to consciously assessing the experience, one must ensure the feedback is legitimate. That is to confirm the environment of the experience, as an inaccurate understanding of the environment can produce false feedback (Hogarth 2001, 208).

Imposing circuit breakers also facilitates the development of intuition. In an action generally opposite of making deliberate methods tacit, circuit breakers halt a tacit process. This method allows the decision maker to analytically question the situation and determine the best method by which to proceed. An example provided allows for emplacement of a circuit breaker when one meets a con man. The con will intentionally

provide a good first impression, yet a circuit breaker will immediately force a deliberate evaluation when someone seems overly kind early in a relationship (Hogarth 2001, 209).

An understanding of emotions is essential to developing intuition. Without question, most experiences provide some level of emotion. Nevertheless, people must understand their emotional response to the given problem and categorize it to appropriately deal with the situation. These emotions may or may not factor into the eventual decision; however, they must be understood to prevent them from adversely affecting the decision (Hogarth 2001, 210).

Exploring connections allows the decision maker to look at the given problem from another perspective. For example, the one may stop and evaluate the situation from a different person's perspective or he might consider another, similar scenario to determine if connections exist that would not otherwise be apparent. This could allow for the unveiling of solutions not otherwise visible (Hogarth 2001, 210-211).

Accepting conflict in choice allows the decision maker to proceed when difficulty arises. Frequently decisions will require the comparison of something tangible (like money) with something intangible (like emotion). If one realizes that this conflict exists, he is more likely to deal with the conflict and make a decision rather than become lost in the disparity of the equation--one cannot rationally equate two things where one is tangible and one is intangible. Certainly recognition of conflict does not necessitate the right decision; however, circuit breakers to force deliberate analysis of the conflict will enable a decision (Hogarth 2001, 211).

Making scientific methods intuitive enhances the application of experiences to tacit processes. If a deliberate system is consciously and routinely practiced, it will

become a tacit system. Hogarth proposes that it is possible “to make scientific method[s] intuitive” (2001, 212).

Robin Hogarth studies the education of intuition. By her definition, intuition is a non-analytical process used to produce judgments. She outlines five ideas that prove that intuition can be educated and seven steps for its development. Although not a model in the traditional sense, application of this process could prove beneficial to the development of judgment.

Summary

This chapter reviewed multiple biographies of Generals Patton, Eisenhower, and Bradley to ascertain a pertinent biography of each; determined commonalities between the three generals; and produced a synthesized biography. Subsequently, this chapter examined decision making processes as defined by the U.S. Army and other scholars. Finally, this review of the literature outlined applicable judgment development models.

Chapter 3 of this thesis provides the methodology for analysis of the synthesized biography and the decision making and judgment development models addressed. Additionally, it outlines the overlay of the synthesized biography on the judgment development models. It emplaces the relationship of aptitude to the development of judgment in preparation for analysis. Finally, the methodology addresses how judgment can be developed and applications for today’s military.

CHAPTER 3

RESEARCH METHODOLOGY

Introduction

This chapter delineates the methodology for analysis of the commonalities of Generals Patton, Eisenhower, and Bradley against modern judgment development models. Additionally, it outlines the sequencing of chapter 4 through the potential for future application. The analysis of this work traces the subordinate research questions to provide a logical conclusion on the development of judgment.

Synthesized Biography

The detailed biographies of Generals Patton, Eisenhower, and Bradley are analyzed comparatively in an attempt to establish any parallels or similar type relationships or experiences. This produces similarities between the generals' relationships and/or experiences potentially aligned with their judgment. These similarities are provided in a synthesized biography.

Judgment Application--Assessment of Decision Making

This thesis evaluates decision making as required by the U.S. Army. Additionally, this work examines additional scholarly decision making models. The study evaluates the decision maker's application of judgment as outlined in each process and model. This thesis outlines the fundamental application of judgment in decision making and its relationship to intuition.

Assessment of Judgment Development Theories

Subsequently, this thesis assesses the judgment development theories provided in chapter 2. The models are analyzed to determine their potential applicability to this study.

Overlay of Synthesized Biography and Judgment Development Theories

Finally, this thesis compares the judgment development theories assessed against the commonalities of the subject generals. The integration of judgment development theories and any existing similarities in the three generals will provide an assessment of the theories with respect to the development of these three leaders. If a particular judgment development theory suggests a pattern similar to one found in the commonalities between the generals, it may serve to validate the development of the three generals studied. The overlay of one or more theories on the consistencies between the generals will be included and should prove or disprove the development of their judgment.

Aptitude

This study addresses the role of aptitude in the development of judgment. The presence of a connection between the commonalities of the three generals and one or more of the models analyzed may suggest a path to judgment development. However, if this overlay is not unique to the three subjects, this thesis will address aptitude to determine the potential discrepancy in the overwhelming success of the generals evaluated.

Judgment Development

This thesis discusses the potential methods for the development of judgment. The integration of the judgment required for decision making and the overlay of the synthesized general with the evaluated models may provide a guide to the development of the desired judgment. An overlap of the models reviewed and the methods implemented may provide the how in judgment development.

Applicability

If threads of continuity exist and can be overlaid on an existing judgment theory, the potential of application today by leaders and institutions is addressed, but not evaluated in depth. Analysis of potential programs to enable judgment development in an organizational or institutional arena will be considered. This should provide the conclusion of this thesis.

Summary

By sequentially evaluating each of the subordinate research questions, the analysis that follows in chapter 4 provides the answer to this thesis. Further, it addresses the potential for application in today's military.

CHAPTER 4

ANALYSIS

Introduction

“Decisionmaking is the process of selecting a course of action as the one most favorable to accomplish the mission . . . deciding includes knowing if to decide, then when and what to decide, and understating the consequences” (FM 6-0 2003, 2-3). The presence of action is proof of a decision and the presence of a decision is proof of the decision maker’s application of judgment. This process can be either deliberate or abbreviated; however, both require judgment.

Research Questions Answered

The primary research question of this thesis is: Can judgment be developed? The answer to this question requires a systematic approach laced through the subordinate research questions. The focus of this analysis is the answering of these subordinate questions.

Question 1: Common Threads

Are there common threads in the judgment development of the selected individuals? This thesis analyzed each of the generals to determine if similar experiences in their development exist and drew out the common threads. The commonalities enabled the development of a synthesized biography for subsequent evaluation against known judgment development models. There are common threads in the development of Generals Patton, Eisenhower and Bradley. The following synthesized biography is

extracted from chapter 2 of this thesis and highlights the developmental overlap of the three generals.

Synthesized Biography

1. All born to poor families, financially limited
2. Two of the three families had no significant military experience
3. Two of three were from larger families 4-7 kids
4. An avid reader with a preference to the study of history
5. All married shortly after commissioning
6. All capable and passionate about athletics
7. All attended West Point and graduated in the top 50 percent of the class; however, none better than top 27 percent
8. Commissioned Infantry or Cavalry
9. Two of three had combat experience as lieutenants
10. Two of three were extensively involved with the introduction of tanks into the Army; the third was a student and instructor of tactics
11. All graduated from the Command and General Staff College and the Army War College with one as the distinguished graduate of each; the third was second in his class at the Advanced Infantry Course for senior officers
12. Two of the three planned and served in the Army's mechanized maneuvers in 1941, testing the mechanization concept for the Army
13. Two of the three developed the plans for Operation Torch (invasion of Africa)
14. All three were recognized early for hard work and talent

15. Each had mentors who were ultimately exceptionally successful including Generals Pershing, MacArthur, and Marshall, with only General Marshall as the single common mentor
16. All were experts of the same field, albeit by different courses: one was primarily a commander, one served in a variety of Executive Officer and Chief of Staff positions; effectively serving as the orchestrating officer, and one was primarily an instructor
17. Additionally, a relationship between each of the three exists sporadically throughout their careers. There are many references to the relationships between Generals Patton, Eisenhower, and Bradley as they traversed their careers--working together in training, doctrine development, and other senior positions facilitated an interlaced trust between these three officers.

Analysis of this synthesized biography provides several insights potentially related to judgment development. The resulting general was an avid reader with a preference to the study of military battles. He was commissioned into a combat arms (maneuver warfare) branch within the Army. This service exposed him to rigorous training under superior officers who fought in World War I. The overview also shows that the resulting general demonstrated intelligence. While not necessarily an academic genius, the general showed an exceptional intellectual gift in his particular line of work. The resulting general maintained athletic prowess, with a passion for outdoor activities. Hard working and talented, the general would be recognized by superior officers as capable. Regardless of what he was asked to do for his nation, he was a superb performer. The officer was an innovator--able and willing to develop new concepts associated with his specialty.

As evidenced by his performance at work and in advanced schooling, the general was a master of his profession. The method by which the general developed his experience proved to be insignificant. Regardless of whether the general spent the majority of his career commanding, orchestrating, or teaching, he became exceptionally successful in his field. This suggests that method of exposure or position during development is less significant than the actual experience.

Finally, the officer's career exposed him to exceptionally successful senior officers early. Being in the presence of superior decision makers proves significant in and of itself. Exceptional performance in the presence of rising senior officers warrants consideration for future positions. In addition to recognition for successfully performing his duties, the resulting officer observed the senior officer's judgment in high-level decisions. Exposure to these decisions enhanced the synthesized general's experience base in quantity and quality at higher levels than his peers.

Question 2: Judgment Application

How is judgment applied? Assessing the possibility of improving judgment requires an understanding of judgment application. This includes the relationship between judgment, decision making and intuition. Research overturned no true judgment develop models, rather two methods for decision making (MDMP and RPD) and several techniques for improving aspects of decision making. Understanding the application of judgment is essential to continue towards assessing its development.

A decision maker must use judgment to come to a conclusion--that is to say decision making is the result of applying judgment. In the Military Decision Making Process (MDMP) the judgment is in the acceptance of the in-depth analysis as compared

to the leader's evaluation of his personal experiences. The result of this judgment is his decision to select a course of action. In the Recognition-Primed Decision (RPD) model, the decision maker applies judgment to assess the likeness of his experiences to the current situation and to determine the probable outcome of executing his proposed course of action in the given problem set. Regardless of the model, the decision maker applies judgment prior to selecting a course of action (or making a decision).

In the application of judgment, the decision maker must evaluate the potential course of action and the existing circumstances to determine the likely outcome. Simultaneous to this conscious evaluation of the problem set, the decision maker's sub-conscious is evaluating the same scenario. This sub-conscious evaluation of the situation provides the decision maker with an intuition or "gut feeling" about the proposed solution. This intuition factors into the judgment that is subsequently applied in making a decision. In summation, intuition is a subset of judgment, while judgment is a prerequisite to decision making.

Question 3: Current Theories

What are the current judgment development theories? This paper analyzed the application of judgment and identified methods for its improvement. As previously stated, extensive research identified no pure judgment development models. Nevertheless, suggested methods for improving both decision making and intuition were identified as outlined in chapter 2 of this document.

Both Hogarth in *Educating Intuition* and Klein in *Sources of Power: How People Make Decisions* identify experience as a developable aspect of judgment. Both agree that physically experiencing a situation can provide an effective method for improving

judgment. However, neither author would accommodate personal experience as ideal or a stand-alone method to maximize development. Decision makers also gain experience from stories or translations of another's experience. However, the explanation of the decision must include all of the pertinent information surrounding the decision maker's mindset.

Understanding the environment in which a decision was made is necessary to appropriately understand the decision itself. Incomplete or inaccurate representation of the circumstances will necessarily confuse the student. Without translating which aspects of the situation factored into the decision and how they were applicable, the student will not develop that appreciation and may not connect those clues with that decision when called upon.

Additionally, the development of judgment requires repeated experiences with similar learned points. Repetition allows for the human mind to build-up a collection of data points. This effectively allows the student to maintain multiple similar experiences. While the experiences are alike, they are stored individually. The separately stored yet similar experiences will be available for him to draw upon later.

Another critical aspect addressed by both authors is the decision maker seeking feedback from his experience. Training simulators are highlighted as an exceptional method to provide an accurate depiction of the experience as the decision maker approached his decision. In addition to facilitating multiple iterations to develop a larger volume of experiences, simulators allow for a precise review of the circumstances preceding the decision. While the simulators frequently demand a rapid decision, a review of the known factors prior to the decision allows for the methodical study of the

decision making process. Understanding how and why a decision was made combined with a review of the interpretation of the facts enables the growth of the decision maker.

The integration of the two primary methods for developing judgment reveal experience, understanding the environment, repetition and feedback as the primary tools to developing a decision maker's judgment. While other techniques exist, this study will carry these four forward for review and analysis.

Question 4: Theories Overlaid

Can the current judgment theories be applied to the commonalities of the selected individuals? This thesis analyzed known judgment development models for comparison against the developmental commonalities of the three generals. The methods highlighted by Hogarth and Klein were undoubtedly present to some extent in the development of the synthesized general.

Experience is the foundation of judgment. Undoubtedly, this general had an overwhelming volume of experience from which to draw. From the study of battles in his youth through participation in World War I and the Mexican conflict, he saw combat forces applied against a threat at a young age. He attended schools throughout his career that promoted cross-referencing of experiences with other officers, further enhancing the experience base of the synthesized general studied. As a result of his exceptional performance, the resulting general rapidly passed through the direct level and spent the majority of his career at the organizational level. Through assignments under very successful officers, the general observed high-level decisions early in his career. This exposure proved exceptional as the general watched, his experience base grew. In addition to capturing more experiences, the general gained an appreciation for sound

decisions made well above his rank. He continued to gain experiences throughout his career. A significant highlight was the enormous U.S. Army inter-state maneuver exercise in 1941. Experience was prevalent in the path of the evaluated general.

The extent to which he understood the environment of his decision making is uncertain. The research revealed no direct documentation of discussions reference the nature of an environment prior to a decision. Nevertheless, it could be suggested that, as a student and instructor of tactics and writer of doctrine, he would have questioned the aspects of decisions. He would have understood why decisions were made and what the decision maker was thinking at the time. One could clearly argue that he understood his environment and further understood the importance of this knowledge in the decision making process.

Repetition is essential to building the patterns for subsequent decisions. The synthesized general maintained the depth of repetition required to provide reference points. In addition to reading volumes of military history, the officer experienced a plethora of decisions over a thirty plus year career. Albeit the simulations that provide rapid repetition did not yet exist, the officer maintained sufficient repetition through personal experience and analysis of historical battles. Further, the academic institutions which he attended facilitated his increased repetition through stories, case studies and vignettes. Each iteration of an experience, be it actual or vicariously, enhanced the volume of data points from which the general had to draw.

Feedback is essential to understanding the environment and setting the experience appropriately in the mind. Research uncovered no documentation of this officer being provided the methodical, decision focused feedback addressed here. There was no formal

after-action review process as currently exists in today's Army. Nevertheless, it is likely that he conducted analysis of his decisions behind closed doors with trusted subordinates and peers--potentially, these three generals evaluated provided one another with feedback throughout their careers. It is logical to assume that the general studied his own decision-making process.

Without question, many of the suggested practices for judgment development were exercised by the synthesized general. Nevertheless, the same methods would have been somewhat common to other officers of his era. The resulting question is: what separated Generals Patton, Eisenhower, and Bradley from their peers? There are commonalities among the three generals that segregated them from many of their peers. Their performance in advanced schooling and their understanding of high-level decision making early in their careers certainly decrease the population that could be referred to as "peers." As outlined in the synthesized biography, each was the distinguished honor graduate or second in his class at the Command and General Staff College, the Army War College or the Advanced Infantry Course for senior officers. This demonstrated a near mastery of their profession. Further, their ability to work for the likes of General Marshall as younger officers enhanced their understanding of senior level decision making--which enhanced their experience. By working closely with these successful officers, they would gain an appreciation for how senior officers understood the environment in which they made decisions. This understanding, years before they were required to make the same caliber decisions, certainly enhanced their experience base in volume and depth. The combination of their demonstrated expertise in their profession and understanding of

high-level decisions truly separated each of the generals evaluated from the vast majority of his peers.

An additional commonality addressed in the synthesized biography was the relationship each of these officers maintained with General Marshall. As General Marshall, the Chief of Staff of the U.S. Army, selected senior officers for the campaign in Europe and Africa, these three former understudies all rose to surpass more tenured generals (Whiting 1971, 14). These three generals, in their previous work for General Marshall, certainly proved themselves capable. Perhaps that these three were known quantities and trustworthy subordinates to General Marshall also played a role in their rise to prominence. Nevertheless, it was not simply friendship or loyalty, rather some ability, potential, or aptitude that resulted in General Marshall selecting each of them.

Question 5: Aptitude

What role does aptitude play in judgment development? As previously mentioned, the experience of these three officers was similar to that of some of their peers. Yet, the results of their careers were remarkable. This thesis analyzed what if any role aptitude played in their judgment development. Aptitude, or the ability to understand, is potentially the single most significant factor in the development of judgment.

Although specifically unaddressed by Hogarth and Klein, aptitude plays a critical role in one's ability to understand the environment and to grasp the depth of the feedback required to appropriately compartmentalize an experience. While experiencing a decision and repeating it maintain no necessary correlation with aptitude, capturing the finest aspects of the experience absolutely does. It is in the details of the decision that the student properly associates the decision made with the preceding events. This allows for

the appropriate storage of the event in the mind, to be drawn upon in subsequent decisions.

While aptitude and intelligence are far from synonymous, it could be argued that some correlation exists. All three of these generals were accepted into and graduated from West Point, certainly an impressive feat for the early 1900s. While all graduated in the top half of their class, none were in the top quarter. This suggests that while all three were intelligent, none was off the chart intellectually. However, each of the three was a distinguished honor graduate or second in the class of the Command and General Staff College, the Army War College, or the Advanced Infantry Course for senior officers. This indicates that each had an aptitude for mastering information specific to his profession.

Probably applicable to the three generals studied, and certainly applicable to this study, aptitude shapes judgment development.

Question 6: How to Develop Judgment

How can judgment be developed? If judgment can in fact be developed, how? Judgment is not simply experience or knowledge, rather the appropriate application of one's experience and knowledge. To develop judgment, one must look into the accuracy with which the decision maker draws from his experience. As outlined in the overview of the judgment development models, experience, understanding the environment, repetition, and feedback all play a critical role in the development of judgment.

Increasing experience is a prerequisite to developing judgment. Experience is increased through either physically experiencing a scenario, or by way of stories, case studies, and vignettes. Without increasing experience, an organization is relying on a

decision maker to select a course of action from a smaller sample of possible solutions--decreasing the probability that he will make the correct connection.

Having experienced something before does not ensure the decision maker will appropriately recall the event when faced with the same (or similar) scenario. Experience alone will not suffice. It is only through fully understanding the circumstances of the original experience that the decision maker may recognize the same (or similar) indicators preceding his current dilemma. Further, it is only through repetition that a judgment development model can increase the likelihood that the decision maker will recognize the current problem set as familiar. The more previous examples of the same (or similar) scenario available to draw from increases the probability that the decision maker will identify the indicators and select the appropriate course of action.

Finally, feedback enables the decision maker to fully understand a decision. While advantageous, a self-assessment of a situation and the resulting decision are far less likely to unveil the true depth and breadth of the decision. Only through review of the scenario with other experienced decision makers can the student ensure he fully understands each indicator and its association with the subsequent decision.

Determining if and how judgment can be developed, while academically interesting, achieves little without subsequent analysis of how this can be applied. The potential ability to improve a decision maker's judgment prior to his execution in a real, time-sensitive, life threatening or otherwise high-stake situation certainly warrants analysis.

Question 7: Development Programs

Can these methods be embedded in today's leader development programs? A study of judgment development, as with most studies, would be insignificant if not assessed for future application. The military or any organization desiring to develop a student's judgment can apply the four methods previously discussed. Undoubtedly there are techniques that would enhance the student's experiences and promote the true development of judgment.

Unit leadership development programs can afford students actual experiences. Further, they can also provide simulated experiences, stories, case studies, and vignettes, each serving as a supplement to personal experience. While academic institutions are limited in providing first-hand experience to the student, they can certainly achieve high levels in each of the other experience arenas. Continuing to increase the experience of the student will allow for the sustained development of his judgment.

Understanding the environment is essential to appropriately categorizing an experience for future reference. Both unit leadership programs and academia can develop the student's understanding of his environment. Critical indicators preceding a decision are prevalent in personal experience, as well as each of the supplemental experiences. It is immaterial whether the student identifies the critical fact, is told while on sight, or develops an understanding having never seen the actual physical experience. Regardless of the method, the scenario will be properly categorized as long as the student appropriately understands how the fact is associated with the environment and the decision.

Repeated iterations are essential to increasing the probability of the decision maker recalling the situation at a later time. While the personal experience achieved generally in unit leadership programs allows for repeated experiences, simulations further enhance this effect. Repeating an actual exercise requires a significant amount of time while resetting a simulator requires only moments. Further, slightly modifying the facts or indicators preceding the decision is far more complicated in reality than in either a simulation or a verbalized account. The repetition increases the decision maker's like experiences--available to draw from in the future. The more experiences stored in memory, the greater the chance that the decision maker will make an appropriate connection in future experiences.

Feedback is essential to ensuring the decision maker fully understands the facts and their relevance on the course of action. Both unit development programs and academic institutions are capable of providing this feedback. The Army's After Action Review (AAR) process provides this feedback. Frequently, the feedback is enhanced through video of the actual event or a replaying of the simulation scenario to identify the available clues and assess what the decision maker determined from each.

Application of these four methods will enhance judgment. Further, as outlined above, this development can occur in both academic and organizational environments. Ideal development is derived from experiences that properly integrate all four of the above techniques.

Summary

The development of judgment is essential to improving decision making. As detailed in this chapter, there are common threads in the development of Generals Patton,

Eisenhower and Bradley, and these commonalities can be overlaid on existing development models. Not only is it possible to enhance the student's judgment, it is probable that development will occur with appropriate techniques. Increasing experience, understanding the environment, repetition, and feedback are critical elements to the development of judgment.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

Introduction

Judgment can be developed. This thesis analyzed the development of Generals Patton, Eisenhower, and Bradley and overlaid existing commonalities in their development onto judgment development theories. The analysis shows that through use of techniques drawn from both Robin Hogarth in *Educating Intuition* and Gary Klein in *Sources of Power: How People Make Decisions*, judgment can be systematically improved. The establishment of a system to develop judgment must include increasing experience, the student understanding his environment, repetition, and appropriate feedback. The integration of these four mechanisms increases the effectiveness of the training and promotes the decision maker's ability to apply the connections to similar decisions in the future.

To fully recognize the challenge in developing judgment requires the framing of judgment, intuition, and decision making. This thesis declares that judgment is a prerequisite to decision making, while intuition is a subset of judgment. That is, decisions necessarily require the decision maker's judgment and that judgment involves his intuition. With judgment appropriately categorized, it is apparent that the desire to improve judgment is truly aiming at improving the decisions that leaders make. Further, to improve those decisions, a judgment development plan must work to increase the likelihood that the decision maker will draw appropriately from his previous experiences. Whether consciously or subconsciously, these connections can be solidified by the methods outlined in this thesis.

Conclusions

This thesis provides the review and analysis of literature relevant to the decision making process and the development of judgment. By systematically analyzing the information, this work concludes that judgment can be developed. The following is a brief synopsis of the path through the subordinate research questions enabling the arrival at the conclusion.

There are clear commonalities in the development of Generals Patton, Eisenhower, and Bradley. The selected generals had many similar developmental experiences. Included (but not inclusive) are: military specialty, rigorous training, experienced supervisors, academic prowess and professional expertise, dynamic thinkers, athletic ability, and superb job performance as identified by their superiors. Further, all were enabled by exposure to talented officers and high-level decisions early in their careers.

Additionally, there are similarities in the development models outlined by Hogarth and Klein. While neither model spoke directly to the development of judgment, both provided a direct link. Hogarth's proclamations on educating intuition and Klein's evaluation of improving decision making each address judgment and how it can be improved in a student. Both authors determined that experience is the foundation upon which judgment can be improved. Further, only through understanding the environment, repetition and appropriate feedback can an experience be properly stored for future decisions.

The overlay of the similarities between the generals and the developmental models clearly indicates that the generals grew in a system similar to the model drawn

out in this work. Experience and repetition were clearly delineated from the references. Each of the generals was clearly provided with ample experience and redundancy to set the scenario. Further, it can easily be argued that the generals understood their environment (as developers, writers, and teachers of doctrine) and received appropriate feedback to ensure the captured experience was properly categorized for subsequent decisions.

As stated earlier, aptitude remains unaddressed by Hogarth and Klein, yet it plays a crucial role in the development of judgment. Capturing this aptitude may prove as challenging as understanding judgment development itself. This discussion will be further addressed in the considerations for further studies. Regardless of how aptitude is determined or quantified, it is clear that different people maintain different abilities to learn from experience. Accepting this is to accept that aptitude factors (perhaps greatly) into judgment development.

While it becomes reasonably clear that some have a greater aptitude for development, it is irrefutable that judgment can be developed to some extent in all able-minded individuals. Having concluded that judgment can be developed, the necessary follow-on question is how. As outlined in chapter 4, there are four critical mechanisms to develop judgment.

1. Increased Experience
2. Understanding the Environment in which the decision took place
3. Repetition to Solidify the Experience
4. Appropriate Feedback to Ensure Proper Association

Application of these four steps will be further developed in the recommendations for application below.

While it is significant that judgment can be improved, that knowledge alone is insignificant. It is the methods for that improvement and the continuation of this study that will truly provide for better judgment in leader's decisions. The following sections will highlight recommendations for the implementation of a judgment development system and considerations for further research.

Recommendations

As outlined in this thesis, judgment can be developed. The researcher therefore recommends that organizations that desire a higher level of judgment in their leaders use the methods described in this work. With increased experience, leaders become better decision makers. This experience can come in the form of actual execution, case studies, or simple stories told of another's experience. Appropriately capturing the essence of the decision is critical to framing the decision for subsequent situations.

Regardless of the method of delivering the experience, the development system must ensure that the student understands the environment in which the decision is made. To fully analyze the judgment applied by the decision maker, the conditions preceding the decision must be known. Because judgment is the appropriate application of experience, an understanding of the situation will enable a review of which pieces of information available were integrated into the decision. The decision maker's understanding of which aspects of the situation were viewed as relevant and factored into his decision is a significant aspect of improving his future decisions. Further, grasping which bits of information were available to the decision maker and were not used is

equally important. The student must understand how to categorize information as significant or insignificant and the appropriate subsequent use of those data points. Only through a complete understanding of the environment can the decision maker fully understand the information available and its subsequent categorization.

Repetition is essential to developing judgment. Any judgment development program must provide multiple iterations to ensure a larger base of experiences from which the decision maker can draw. This increased experience base will increase the likelihood that the decision maker will recall the information when necessary. The decision maker will more likely recall similarities to previous experiences if he has a larger volume of repetitions upon which to draw. While this is certainly possible in physical execution, the student can execute far more iterations by use of simulators, stories, or case study analysis. Additionally, these alternate methods of gaining experience facilitate providing feedback.

Receiving appropriate feedback is critical to capturing and appropriately categorizing the experience. To maximize the effect of experience, the development system must include a feedback mechanism. The review of the experience will ensure that the decision maker truly understood his environment. By reviewing the information available, the student will solidify his interpretation of the scenario. He will better understand the indicators identified or missed and incorporated or ignored. This feedback will ensure that the decision is properly categorized, to be recalled in a later decision.

Subsequent Studies

The foundation of this study was to determine if judgment could be developed. As relayed in this thesis, judgment can be developed. Further, a framework to enable

judgment development is provided. With these assertions several questions arise as potential topics for subsequent study.

1. To what extent can judgment be developed?
2. Can levels of judgment development be quantified?
3. What is the relationship between aptitude and the development of judgment?
4. At what point in a young leader are the attributes associated with judgment development identifiable?

Understanding the depth of these questions is essential to continuing this study. With an ultimate goal of developing the highest (if measurable) levels of judgment in those selected for the premier positions, further research must be conducted to answer these questions.

The extent to which judgment can be developed deserves additional analysis. Without question, application of the techniques reviewed in this thesis will enhance judgment. However, are they capable of achieving the highest levels of judgment? Although the quantification of judgment is difficult, certainly there are developmental levels. While this thesis concentrated on improving judgment overall, a subsequent study could evaluate the possibility of developing a selected individual's judgment to the highest level.

To what extent can judgment development be quantified? To reach the highest level of anything requires a categorization that may not be possible with judgment or its growth. If judgment cannot be quantified, is there another measure applicable to compare one's judgment with another's? This must be explored if the objective remains to reach certain levels of development.

The relationship of aptitude to the development of judgment certainly warrants further analysis. There exists some trait that separates individuals such as Generals Patton, Eisenhower and Bradley from their peers. There are indicators that aptitude for judgment development is a factor in this separation. This thesis argues that aptitude enables the appropriate categorization of experience and suggests that this may have contributed to the judgment development of the generals evaluated. Albeit different from intelligence, perhaps intellect is a potential indicator of aptitude. If not, what other indicators of aptitude exist? Certainly aptitude does not fall into the true or false categorization; rather a variety of levels of aptitude exist. The quantification of aptitude will likely provide the same challenge as that of judgment.

At what point in a young leader are the attributes associated with judgment development identifiable? Ideally, the admissions processes for both the Military Academies and Reserve Officer Training Corps (ROTC) could incorporate these attributes in their selection criteria. If the ability to evaluate the potential for judgment development exists prior to about age twenty, the criteria could be applied to job selection. If aptitude could only be identified in later years, it could facilitate the processes of promotion and retention in the military or civilian community.

Closing

The development of judgment is an abyss in the study of mankind. The interrelationship between the conscious and the subconscious is easily avoided by the experts of each side. This thesis only attempted to chip away at the surface of what is likely the desired outcome--developing the highest levels of judgment in decision makers. The simple facts that judgment can be developed and that organizations can emplace

systems to facilitate this improvement are significant. Nevertheless, this researcher closes his conclusion with more (and more challenging) questions than when this endeavor began.

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